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How To Create A Lasting Peace Between Biotech Management, Shareholders And Employees

Biotech executives make strategic decisions based on incentives that aren't necessarily aligned to benefit either the company's investors or employees. Three modifications to business as usual would help solve the problem and lead to improvements in the productivity of people and capital in the sector.

BY PETER KOLCHINSKY

- Investors and companies continue to struggle to identify how shareholders can get a return on investment without management having to sacrifice their ambitions for a thriving, diversified pipeline.
- To align disparate stakeholders, biotech companies should consider multiple strategies, including the creation of spin-out companies that separate discovery efforts from development activities.
- Compensating executives with restricted shares instead of stock options creates a management team that also has a direct financial stake in the company's share performance and use of capital, better aligning the objectives of shareholders and managers.
- Greater use of tradable contingent value rights, especially when products are licensed, would ensure the return of cash to shareholders as milestone and royalties are realized.

The biotechnology industry has a problem: none of the primary stakeholders who make the business work – managers, scientists and investors – are particularly happy with each other. Investors want returns – certainly faster than biotechs have delivered them. Scientists working on early stage programs feel, with good reason, completely undervalued by managers and investors. Managers hate investors' emphasis on near-term results, which can subvert longer-term strategic decision making and methodical business execution.

But there are solutions that fundamentally try to align the incentives and preferences of these disparate stakeholders. It's no secret investors gravitate toward better characterized late-stage programs, while demanding an actual return on their capital through a return of cash via dividends, share buybacks, or the sale of the company. Since this can come at the expense of management's job security, changes to the business model that allow managers to benefit alongside investors must be considered. Just as investors can adjust the level of risk in their portfolios, biotech executives should also be able to dial in the amount of risk they are comfortable taking in their careers. Moreover, early-stage researchers should see their work valued and nurtured over the long-term by investors and managers, not ignored and put at risk in favor of a single later-stage bet.

We think that three modifications to business as usual, primarily geared toward publicly traded companies – and those that want to be public – will go a long way to achieving these objectives:

1. Platform companies should spin off later-stage drug development projects as independent entities whose shares are issued as dividends to the platform company's shareholders.
2. There should be greater use of restricted stock, instead of stock options, as the primary mode of management and employee compensation.
3. There should be broader and more creative use of tradable contingent value rights (CVRs) for offering shareholders a return.

THE PROBLEMS WITH BUSINESS AS USUAL

Since the birth of the biotechnology industry, investors and entrepreneurs have been attempting to shuffle risk around without losing out on the reward. In the mid- to late 90s, platform companies were all the rage, as investors saw opportunities in staking early-stage discovery efforts and then recouping their outlay by partnering off early-stage programs. They were essentially betting that keeping a few percentage points of ownership in each of many pro-

grams would be less risky and offer just as high a return as keeping a large stake in a single program.

Between 2001 and 2003, platform companies fell out of favor as public investors realized they would actually need to retain a larger stake in commercialized products to generate a meaningful return. This meant operating more like a product-focused company and taking more concentrated risk. As a result, money flowed toward companies with later-stage products and “platform” became a dirty word. Today, the most common biotechnology business model is that of a company with one lead product on the market or a lead candidate advancing through development, with or without a partner. If there is a pipeline behind the lead program, the company probably gets little or no credit for it from either investors or potential acquirers, who prefer to value the bird in hand rather than the pie in the sky.

The most important signal that something is wrong with the conventional biotech business model is that shareholders do not often participate in the success when a drug gets to market and the company starts to generate revenues. To get a return on investment, cash actually needs to be returned to shareholders. Until then, the value of the investment is purely theoretical and derived from investors’ collective optimism that someday the company will be bought or will start to return profits through dividends or share buybacks. After all, what’s the point of a discounted cash flow model if the shareholder is not actually going to get any of the cash flow?

However, in those cases where a small public company starts to generate revenues from product sales, the typical next step is to roll the dice again and redeploy the cash into the rest of the pipeline or into the acquisition of other development-stage programs – exactly the strategy pursued by companies as varied as **Penwest Pharmaceuticals Co.** (part of **Endo Pharmaceuticals Holdings Inc.**), **OSI Pharmaceuticals Inc.** (a division of **Astellas Pharma Inc.**), **Onyx Pharmaceuticals Inc.**, and **Cephalon Inc.** Each of these companies managed to get a product to market with a partner and then bought or in-licensed new development-stage programs.

When shareholders feel that the board and management are failing to represent their interests, the easiest way to voice their

opposition is by selling their shares. In some cases, however – **Cypress Bioscience Inc.**, **Penwest Pharmaceuticals Inc.**, and **CPEX Pharmaceuticals Inc.**, for example – shareholders fight management publicly, taking over companies or pushing for their sale when they feel the funds are being squandered. With valuations depressed by high operating expenses, these companies may attract acquirers who see the potential to increase cash flow through deep cost cuts, which often includes laying off R&D, as was the case with the acquisitions of **Cypress**, **Penwest**, **OSI Pharma**, and, most recently, **Valeant Pharmaceuticals International Inc.’s** hostile bid for **Cephalon**. (See “*Valeant’s Hostile Bid For Cephalon*,” *IN VIVO*, April 2011.)

At the root of this problem is the inherent tension between platform-loving management teams who aspire to succeed repeatedly and product-loving investors who primarily trust the lead program. It’s true that when a company has a broad platform – for instance a particular discovery technology or expertise in the creation of certain types of products, say oncologics – investors have a tendency to overlook the merits of the platform in favor of the most advanced asset. A company with five programs at preclinical stages, two in Phase I trials, and one in Phase II will likely find that most interest from investors is directed toward the Phase II program. Thus, when investors give the company money, they demand that most of it be spent on the Phase II program and ascribe little value to the earlier-stage programs. Investors may view the platform/pipeline as a threat with a negative net present value (NPV), diverting precious resources – including management time and capital – from the lead program, which is perceived as the best hope for a big payday.

Therefore, while investors, management, and employees may come together to initially form a platform company without a single clear lead program, the company has a tendency under investor pressure to morph into a single-product company, starving the platform at the first signs of a front-runner. This scenario strains employees not working directly on the late-stage drug. They know their scientific contributions are less important to investors and may not even be acknowledged except as a short line at the bottom of a giant chart in a corporate presentation. Moreover, the value of their stock options – and their job security – hinges on the continued success of one program

largely out of their direct control. If the management team tries to motivate this group of workers by emphasizing the early-stage pipeline publicly, investors may be concerned that management is talking up the early-stage programs because of problems with the lead candidate or because of plans to spend more money on early R&D. Indeed, the more executives resist the fact that their company’s story is driven by one program and insist on continued funding of the platform, the greater the tension with shareholders.

Simply put, these mixed-model (part platform, part product) companies are not stable in the long-run and usually end up focusing on their lead product or being acquired for this program as their pipelines are dismantled. For example, after a failed partnership and the departure of long-time CEO George Scangos, PhD, **Exelixis Inc.’s** new CEO, Michael Morrissey, PhD, repositioned the company to focus exclusively on its lead oncology asset cabozantinib (although it still had over a dozen other earlier-stage partnered programs), cutting 400 jobs, more than 60% of its workforce, in the process. **Cypress Bioscience**, on the other hand, was dismantled following a hostile acquisition by one of its shareholders after management diverted milestones and royalties from its partnered fibromyalgia drug *Savella* (milnacipran) to the acquisition and development of other drugs that shareholders did not consider compelling. (See *Exhibit 1*.)

PLATFORM VS PRODUCT DEVELOPMENT DECISION

Certainly if development of the advanced asset proceeds smoothly, shareholders of a public company will often tolerate what they see as management’s pipeline fancies. Even so, there remains the potential that things might go badly for employees and/or shareholders in one of several ways. For example, in the case of an acquisition where shareholders primarily value the company based on its lead asset and sell the company to a like-minded acquirer, it’s highly likely the acquirer will discard the rest of the pipeline programs (e.g. **Cypress**). After all, these early-stage programs are more commonly viewed as an expense burden by the buyer. Even as shareholders get what they want, the biotech’s employees, who have devoted themselves to these pipeline programs, face the distressing prospect of losing their jobs. Aside from the human cost, such an

outcome may make it more difficult to successfully commercialize earlier-stage projects at some point in the future (though they may also be spun off and restaffed, often with some of the same people who were laid off from the parent company).

Say the company isn't acquired but the most advanced program is successfully partnered or otherwise commercialized. Even here there is potential for disconnect between a biotech's management and investors. If management decides to spend the cash flow on the pipeline without shareholders' approval (which management does not technically need to seek), shareholders may become upset to learn that the winnings from the program won't be returned to them, despite years of investing in the company toward that goal. Realizing that there is inherently no value to a share of a company whose management team has no regard for shareholders' right to a return on investment, shareholders may sell out of the stock, causing a company's share price to drop. In the end, this hits employees as well, since those with stock options also lose.

It's also problematic when the company's valuation and future success clearly hinges on the continued success of one lead program, which then experiences a setback. Such an event not only reduces a company's valuation, but also increases the firm's cost of capital should it decide it needs to raise cash from investors. In such instances, one "solution" may be to jettison the pipeline as a means of conserving capital, since the best chance of quickly restoring the company's former valuation is by rehabilitating the lead program. Unfortunately, as in the acquisition scenario outlined above, those employees working on earlier-stage products will face job losses as their projects become non-core. In addition, the innovation inherent in the pipeline may be lost unless some other company picks up the programs; certainly this disruption is not good for innovation. Ultimately, the company's mission becomes laser-focused on the lead program, which is what shareholders want, but pipeline employees lose their jobs.

Finally, what happens when a biotech's lead program fails without any hope of resurrection? In such instances, one might

assume it is better to be a platform company: with multiple projects ongoing, the existing management team simply pivots to refocus efforts on another promising molecule, and the share decline on the negative news becomes a temporary disability. But that's not the norm – at least for investors. After its lead product for coronary artery bypass graft surgery failed, **Alexion Pharmaceuticals Inc.** quickly rebounded due to the success with its second-in-line drug *Soliris* (eculizumab) in paroxysmal nocturnal hemoglobinuria (PNH); and **Medivation Inc.** appears to making a comeback following the failure of dimebon in Alzheimer's and Huntington's thanks to continued clinical progress of the prostate cancer agent MDV3100. But these turnarounds notwithstanding, it is extremely rare for shareholders to discover a second asset in the pipeline that can restore a company's valuation so soon after the lead's failure. In most cases, the company may as well start over from a new cost basis and hope that an earlier-stage program eventually advances far enough to create value in the company from that level. For example, **Addex Pharmaceuticals Ltd.**, which has

Exhibit 1

Case Studies Of Discord

IN THESE THREE EXAMPLES, THE PRACTICED BUSINESS MODEL PUTS INVESTORS, MANAGEMENT, AND EMPLOYEES AT ODDS WITH ONE ANOTHER.

COMPANY	ANALYSIS
Cypress Bioscience	Successfully brought the fibromyalgia drug Savella to market with partner Forest Laboratories, a process that took the better part of a decade and required many financings, each of which could be considered a vote of support from shareholders for Savella's development. Following the lucrative Forest partnership, Cypress deployed large sums toward new projects, including the acquisition of a Phase III schizophrenia drug from BioLineRx Ltd. Cypress shareholders believed their cash was being wasted and sold off their shares. If the asset were really promising, argued the shareholders, Bioline's own investors would have advanced the drug rather than out-licensing it. As a result of the sell-off, in which Cypress' stock dropped well below its cash balance, a single large investment fund was able to take control of the company through a hostile acquisition, disband its pipeline, and sell off the royalty stream from Forest's Savella sales to a royalty fund.
Gilead Sciences	Founded in 1987, Gilead first generated positive cash flows in 2002. After creating the world's most successful HIV drugs, <i>Truvada</i> (tenofovir/emtricitabine) and <i>Atrypa</i> (efavirenz/tenofovir/emtricitabine), it used its cash stockpile to acquire Myogen for \$2.4B in 2006 and CV Therapeutics for \$1.4B in 2009. Not until 2010, after a flight by shareholders that caused a steep drop in the stock price, did Gilead return capital to shareholders by repurchasing approximately 11% of its outstanding shares and then promising more buybacks. Until then, Gilead had never issued a dividend and its share buybacks were modest, not even keeping pace with the continuous issuance of options to management.
Northstar	When the pivotal trial of Northstar's neuromodulation device failed, the company had significant cash in the bank and a relatively modest burn rate. Yet the company's stock traded at a steep discount to its cash balance for months, suggesting shareholders feared management would spend most of the money without creating any value. Eventually, the board bowed to shareholder pressure by cutting expenses and distributing the remaining cash to shareholders.

SOURCE: RA Capital

a small-molecule GPCR-focused discovery platform, enjoyed a high valuation following its 2007 public offering as its unpartnered mGluR5 modulator for migraine prevention and GERD progressed through development. But when a Phase IIb trial of the lead drug was halted due to liver toxicity in 2009, Addex's stock crashed to all-time lows and has not recovered.

Unfortunately, in these cases, all of the employees who were hired to work on this pipeline back when the advanced program was still viable now have worthless stock options. Often, if management does not act quickly enough to replenish everyone with new stock options at the current low strike price, these employees lose hope and look for other jobs. Again, the disruption within the platform com-

pany of a lead program failing hurts morale, costs jobs, and impedes innovation.

If the lead program fails, sometimes the right answer is *not* to start over—especially if the pipeline is very early-stage and of a low quality due to chronic underinvestment. The proper next move may be to shut down the company, return capital to shareholders to invest elsewhere, and lay off employees so they can contribute their expertise to another endeavor. But management may not want to do this, especially if they have attractive salaries, no equity in the company, and therefore would not receive any of the cash if it were distributed to shareholders. They may prefer to keep their jobs, issue themselves more options, and use the remaining resources to keep swinging for the

fences. Such a scenario is more likely to occur without the consent of shareholders in publicly traded biotechs since the boards are less likely to include investors with significant equity in the company and are, therefore, more passive. The end result? Shareholders are unable to recover unspent cash, exacerbating losses from the failure of the lead program.

At the root of the dilemma facing the biotechnology industry is that investors and companies are still struggling to figure out how shareholders can get a return on investment without management having to sacrifice their ambitions for a thriving, diversified pipeline. Early-stage R&D employees may serve as little more than ballast, the first ones to go when the company starts heading down.

SOLUTION 1: THE BREEDING PLATFORM COMPANY

While the current dominant business model puts investors, management, and employees at odds with one another, it doesn't have to be this way. Imagine if, at the point that a platform company nominates a lead drug candidate, that asset were packaged into a separate virtual corporate entity and given start-up capital with a project leader appointed as CEO. For every share of the parent company, shareholders (including management and employees) would receive a share of the spin-out, and for every option that a platform employee has, he or she would receive an option in the spin-out.

Other than extra paperwork, there wouldn't need to be any major disruptions to workflow. The product-focused spin-out could still co-locate with the platform parent and contract for services. People within the parent company might even hold dual roles. If the product fails before the start-up capital has run out, the spin-out is closed and its people are recycled back to other projects within the platform (or maybe to another product spin-out). Unless the product's failure revealed a massive flaw with the platform itself—say a major safety issue related to the core platform technology—only the separate shares of the spin-out become worthless if the first product proves less compelling. Indeed, the value of the platform, which retained no claim on the spin-out, should be substantially unaffected.

If the spin-out enjoys some success and needs more capital, the spin-out's management team can go out to raise more money from existing shareholders who want more exposure to the later-stage product and from new investors who gravitate toward single-product companies. Some platform shareholders may decide that they do not want to risk any money on later-stage products. If the platform company were public and created a public spin-out, then shareholders could sell their spin-out shares, realizing a return on their investment in the platform by converting the stock dividend into a cash dividend. The bottom line is that investors could decide for themselves what kind of risks they would prefer to take

based on their specific ownership positions in the platform and spin-out companies.

Employees and management of the breeding platform company could also choose what kind of career risks they want to take. Those people who excel at early-stage discovery and are interested in technology development may want to stick with the platform company rather than focus on a single product. But others, maybe those who enjoy the thrill of a riskier stint in a single-product company, might prefer to join one of the spin-outs.

In principle, shareholders want a CEO at the helm whose objective is to optimize the return for shareholders, even if that means that the company should be shut down or sold and the CEO's job terminated. From their perspective, a CEO who is too attached to the company—too "job"-oriented—is a liability, though there is less likely to be tension if such an executive were at the helm of an effective breeding platform if all the late-stage products are consistently spun off. But in the case of single-product companies, it's all the more important to have executives who are less focused on keeping one particular job and instead think in terms of the overall arc of their professional life; they know that if they do a good job of executing on a business plan for shareholders, either securing a positive return on investment if the product is successful or at least cutting losses and returning unspent capital if the product fails, then they will be given other projects to work on.

The financial security of the individual may very well dictate whether he or she is comfortable being a "serial" executive; if an executive who would prefer job security is at the helm of a platform, that person should find it all the more important not to threaten the stability of the company by trying to hold onto a maturing product and transforming it into an unstable mixed-model company like Cypress, Penwest, or CPEX, all of whose executives eventually lost their jobs.

Adrian Adams, the former CEO of **Inspire Pharmaceuticals Inc.** comes across as a true serial executive. He took over

Inspire when the company was generating revenues from several ophthalmic products and had a Phase III cystic fibrosis program underway. When the CF trials failed, he cut costs and sold the company to **Merck & Co. Inc.** instead of spending on early-stage pipeline programs. Previously, he had been CEO of Sepracor Inc. (now **Sunovion Pharmaceuticals Inc.**) which he sold to **Dainippon Sumitomo Pharma Co. Ltd.**, and before that he was CEO of Kos Pharmaceuticals Inc., which he sold to **Abbott Laboratories Inc.** While none of the companies he led was focused on just one drug (though each certainly had a dominant product), each was undersized to compete in its respective market and was more valuable to an acquirer. Instead of fighting to preserve his job, he did what was in the best interests of shareholders.

Selling a company for a premium at least may be considered a financial win, but it may be that the harder decision for an executive to make on his own initiative is to wind down a company and distribute its assets; the next section includes a case study of **Maxygen Inc.**, whose CEO was incented by the board to do just that.

In our experience, the ideal platform-company executive is a marathoner who excels at managing a process consistently for a long time. However, a marathoner in charge of a single-product company may be more likely to act to preserve his own position and annual compensation by partnering the lead asset and redeploying the cash to invest in and acquire a pipeline,

The guiding principle we are advocating is that people and capital be free to segregate to companies with risk/return profiles that they find suitable.

as Cypress's management did with the money they received from **Forest Laboratories Inc.** for their lead drug Savella. The result is shareholder dissatisfaction since there is no return of cash to shareholders through dividends and buybacks. On the other hand, successful serial executives are goal-oriented sprinters who may be great at running a product company but may not want to do so forever, which reassures shareholders that they will look to monetize the company rather than save their jobs at all costs.

Even if a serial CEO managing a platform company is happy to monetize the company for the value of its lead program, the marathoner employees who work for him may want longer-term employment. The guiding principle we are advocating is that people and capital be free to segregate to companies with risk/return profiles that they find suitable. This already happens today, albeit with tremendous disruption and anxiety as companies terminate entire divisions or are acquired and then torn apart and their resources – capital, people, and intellectual property – redistributed into new start-ups.

The breeding platform model allows people to achieve the same end but in a more orderly fashion. Nor is the idea exactly new. In 2010, **Pharmaceutical Product Development Inc.** spun out its pipeline and a bolus of cash to form a new

company called **Furiex Pharmaceuticals Inc.**, whose shares were distributed as a dividend to PPD shareholders. Another example is the 2008 spin-out of product-focused **Facet Biotech Corp.** by **PDL BioPharma Inc.**, which then continued to distribute royalty revenues from partnered products to its shareholders while Facet went on to be acquired by Abbott Laboratories Inc. Back in 2002, Maxygen spun out **Codexis Inc.** as a separate private company and then distributed shares of Codexis to Maxygen shareholders in 2010, shortly after Codexis became public.

There are also precedents for privately held platform companies creating separate product-focused spin-outs. **Nimbus Discovery LLC**, for instance, is a private drug-discovery platform company seeded by Atlas Ventures with technology from **Schrödinger Inc.** that recently raised a \$24 million Series A from SR One and Lilly Ventures. At a very early stage, Nimbus packages drug candidates into separate virtual companies that are then spun out. In a similar vein, **Adimab LLC** is a private antibody platform company that makes a point of out-licensing its assets during discovery and shares many of its shareholders and board members with a sister company, **Arsanis Inc.**, specifically focused on infectious disease antibody drug development. Adimab generates substantial revenues from its partnerships and distributes excess cash to its shareholders, who then have the flexibility to decide how much of that cash they want to deploy into Arsanis to fund later-stage development of the infectious disease antibodies that Adimab discovered and licensed to Arsanis. (See "Investing A La Carte: Making Separate Bets On Discovery And Development To Boost Near-Term Returns," START-UP, March 2011.)

The breeding platform model's utility is very different in the case of a private versus a public company. In the case of private companies that are majority-owned by individuals or institutions who are represented on the board, the shareholders directly control whether cash is invested in the pipeline or distributed out to them. Hiving off single-product companies may offer them certain tax efficiencies, especially if they avail themselves of LLC structures. But in the case of public companies, significant shareholders are often not represented on the board and board members often do not have significant personal holdings in the company. The breeding platform model therefore codifies structurally that cash generated from the sale of the spin-outs goes directly to their shareholders without passing through the hands of the platform's management, and also offers some of the other benefits discussed above, such as letting management and employees elect to join a spin-out or stay with the platform depending on their career goals and risk tolerance.

One company that recently went public in Sweden and may be among the first to implement something akin to the breeding platform model is **Karolinska Development AB**, which was formed with assets licensed from Sweden's **Karolinska Institute** and packages its development programs, usually one at a time, into separate companies. Although Karolinska Development has not officially declared that the shares of the spin-outs will be distributed to shareholders of the parent company, management is exploring this option and has made a commitment to return the proceeds of any sales of spinout companies to shareholders.

SOLUTION 2: USE RESTRICTED STOCK TO MOTIVATE MANAGEMENT

Compensating management with high salaries and large blocks of stock options is counterproductive for investors who want executives to think like shareholders and act in their interest. If the strike price of the CEO's options is well below water, the executive may be incented to preserve his job and salary rather than try to maximize the share price. He might be more likely to partner the lead program and reinvest the cash into the pipeline or acquisitions. He certainly doesn't have much incentive to shut down the company and distribute remaining cash if the lead program fails – even if investors believe that's the right thing to do. After all, the CEO stands to not only lose his salary but also loses out on the cash distribution, which only goes to "share"-holders, since he holds options.

Management with a lot of options may try to drive up their value with a share repurchasing program; the problem with this approach is that share repurchasing only works when the stock is reasonably priced or undervalued. If enthusiastic shareholders with imperfect information overvalue the shares, then management shouldn't waste cash by repurchasing shares. Instead, this would be the right time to distribute excess cash out as a dividend, though executives with options may be disinclined to do so because, as option holders, they won't receive the dividend. They may instead feel that the only course left open to them is to use the cash for acquisitions or pipeline development in hopes of developing a blockbuster that drives the valuation significantly higher.

However, imagine if the CEO and other key managers were actually shareholders, not just option holders, and received most of their compensation in the form of restricted stock (i.e. restricted from being sold for some period of time but fully vested at the time of an acquisition or for purposes of dividends). In many cases, having a significant number of shares might prompt a CEO to distribute cash from a big partnership as a dividend instead of spending it on a risky pipeline program. Or, if the lead program fails, the CEO might decide to disburse the cash to shareholders, including himself, and shut down the company at the expense of his title and modest salary rather than take the risk of wasting all the cash on weak pipeline programs.

Favorable tax treatment encourages the use of options instead of stock as compensation, but tax optimization is not a good reason to twist management's incentives so severely that, in some cases, they are financially rewarded for destroying shareholder value. If necessary, bundle a restricted stock grant with a cash grant that at least partially offsets the extra tax bill – having a CEO whose interests are aligned with those of shareholders is well worth the price.

Certainly the use of restricted stock is on the rise. When big pharmaceutical companies started to issue larger dividends in the last several years, they increased their issuance of restricted stock to management instead of giving them options. Venture capitalists are also increasingly trying to motivate executives of companies with restricted stock before they go public (at which point VCs often see their influence wane and they have to trust management to do the right thing). One could even imagine hiring a CEO and giving him a large,

one-time, restricted stock grant that becomes unrestricted over several years. The CEO would be free to enrich himself by issuing dividends to all shareholders or using cash to repurchase shares. But if he saw a compelling opportunity to get a high return on investment, the CEO might instead chose to reinvest the company's cash into its pipeline or acquire other products or companies to try to grow revenues and earnings (presumably so that future dividends and buybacks will be even bigger). Other shareholders would be more inclined to trust the CEO's judgment because his incentive as a shareholder would be aligned with theirs.

Tax optimization is not a good reason to twist management's incentives.

Finally, in accordance with SEC rules on trading by insiders, the CEO could buy additional shares as well as sell some of his shares on the open market. A clause in an executive's contract could also require that he retain at least 50% ownership of these restricted shares in order to remain CEO of the company. If his share ownership dropped below 50% of his initial grant, for whatever reason, the CEO would effectively terminate his employment, having sent a message via this action that he doesn't consider the shares to be worth holding.

The route Maxygen took after suffering serious setbacks with its drug programs in 2008 shows how all parties benefit with this kind of approach to executive compensation. At that time, Maxygen had a large amount of cash and a relatively modest burn rate. Rather than reinvest in the pipeline, the board decided to return money to shareholders. In 2009, Jim Sulat, one of the board members, assumed the CEO role and was granted special Contingent Performance Units (CPUs), which were like options except that they paid the difference between the CPU strike price and sum of the stock price and any dividends issued. Sulat went on to wage the most stunning return of capital by a biotech company to shareholders we had ever seen, including selling off Maxygen's minority stakes in several businesses and, as mentioned earlier, distributing shares in Codexis. While these CPUs were not actually stock, they functioned in the same way because they allowed the CEO to profit from his actions like any other shareholder.

The CPUs were ideally suited to Maxygen's situation because the new CEO got the grant after the company's value had dropped below the value of its cash balance due to the failure of the lead program. Had he received these CPUs before its pipeline problems, and thus before its loss in market value, the drop in the stock price would not have been offset by the value of subsequent dividends. In this latter scenario, the CEO would not have benefited personally unless he received new CPUs with a lower strike price. Restricted stock would have avoided this kind of problem; it can be granted even while things are going well and would always represent an opportunity for the CEO to capture value by liquidating the company if that seems like the best option after the lead program's failure.

SOLUTION 3: BROADER USE OF TRADABLE CONTINGENT VALUE RIGHTS

A Contingent Value Right (CVR) is a kind of option that entitles its holder to receive a payment if the objectives stipulated in the CVR are met. For example, CVRs are created when an acquirer and target company cannot come to an agreement on a sale price and therefore leave some of the acquisition value dependent upon performance milestones. The seller may believe its drug will generate \$1 billion in sales; the buyer just \$300 million. To bridge the gap, the buyer agrees to pay the seller more if indeed the product achieves greater sales. That additional amount, the contingent value, can be packaged into a security – the contingent value right – with each shareholder getting CVRs along with the cash the acquirer is paying for his shares. The CVRs themselves can continue to trade, with investors betting on the performance of the underlying assets. Effectively, the CVRs become derivatives of the acquirer and, to the extent that there is a liquid market, the shareholders of the target company can sell their CVRs to new investors who want to speculate on the chances that the terms of the CVR will be met.

Despite the flexibility of tradable CVRs, publicly traded companies don't typically employ them, though there have been two recent case studies. When **Celgene Corp.** acquired **Abraxis BioScience Inc.** for its breast cancer drug *Abraxane* (paclitaxel), it created the CVR "CELGZ," which trades on whether Celgene can get certain approvals for *Abraxane* in other cancers and whether revenues exceed a set of targets. (See "Despite Celgene's *Abraxane* Stock, Trading Earn-Outs Is The Exception Not The Rule," *IN VIVO*, November 2010.) More recently, **Sanofi's** price to acquire **Genzyme Corp.** included the CVR "GCVRZ," which trades primarily based on whether Genzyme's drug *Lemtrada* (alemtuzumab) wins approval for multiple sclerosis by 2014 and how well it sells. (See "Sanofi/Genzyme: Emblematic Of What Big Pharma's Buying Now," *IN VIVO*, March 2011.) As we've seen in the case of both GCVRZ and CELGZ, sell-side analysts who cover Sanofi and Celgene

comment on the prospects of the CVR, helping to create an informed market. GCVRZ trades over a million units each day whereas CELGZ has much lower liquidity but can reach high volumes on significant news.

But there may be other creative applications of CVRs. When a small biotech company partners a late-stage asset, sometimes management has relatively little left to do. They may consider acquiring another development-stage candidate or may already have pipeline assets that they can spend the money on; in either case, with rare exception, investors are often disappointed when they see that the company is back to its old cash-burning ways. What investors often want is for management to promise to return all the proceeds from the partnership, including the cash from the up-front payment, milestones, and eventual royalties, directly to shareholders and spend as little money on operating expenses as possible. Companies like PDL have effectively done just this. In 2008, following the spin-out of Facet, PDL cut its staff to a few people and has since alternated between issuing dividends and repurchasing shares as a means of returning cash from partnered programs to shareholders.

But what if management just turned the partnership contract into a tradable CVR and took the middlemen (i.e. themselves) out of the equation by distributing the CVRs to their shareholders? Any payment from the partner would be given directly to CVR holders per the terms of the agreement. Trustees might need to be appointed to make sure the partner honors the agreement and makes the necessary payments, but these trustees would not be free to spend all the money on pipeline development or issue themselves large bonuses the way that management could. In this instance, what late-stage-oriented shareholders value most about the company would thus be transferred into the CVR. If the company did not have any pipeline, it would become nothing more than a public shell, which itself still has some value to private

TOWARD A NEW BIOTECHNOLOGY INDUSTRY MODEL

Companies should remain independent and operational as long as there is more value to the sum of their components than in dismantling the business or merging it into another. The ideal breeding platform company is a nimble and efficient machine that disburses CVRs tied to partnered assets and stock of development-stage product spin-outs. As long as there is value to these CVRs and spin-outs, there is no reason to try to dismantle the platform or to seek its acquisition.

Other than greater use of restricted stock to incentivize executives, there is not a lot in this article that can be extrapolated to Big Pharma. Operational synergies and pricing leverage make it more efficient for Big Pharma companies to be diversified across many products rather than focus on one.

Therefore, shareholders can't be expected to analyze a Big Pharma one product at a time; ultimately, they must trust management to manage the company as a whole. But that's not to say that Big Pharma doesn't have a role in the biotechnology industry model that we are proposing.

Big Pharma may not get much respect for their discovery or early-stage R&D efficiency, but they are the best equipped to handle drug commercialization and even late-stage development of drugs that require large expensive trials. Under pressure from shareholders to cut back costs and optimize the return from marketed products, Big Pharma might therefore encourage the creation of more breeding platforms, possibly by spinning out their own R&D units. Later, Big Pharma can pick and choose which assets it wants to commercialize by partnering with

the platform companies for particular products (and hopefully the platform companies will then spin out a CVR for those future payments) or acquiring the single-product companies spun out by those platforms. For example, Forest and Shire have historically acquired late-stage products rather than develop them from scratch.

Therefore, breeding platforms and market-focused Big Pharma represent the kinds of companies that, in ideal circumstances, are more valuable if they operate independently with marathoner executives compensated primarily with restricted stock. Shuttling between these two polar-opposite models is the one-product development-stage company that is inherently unstable as an independent company in the long run. During development, a small team of serial executives running a single-product company can

companies who want to go public through a reverse merger. If the company still had a pipeline, however, then it would now be free from the shadow of the lead program.

This would improve the morale of the employees working on the pipeline (who could receive options on the CVR to match each of their options in the platform company, or, better still, one CVR for every share of restricted they own), and shareholders might come to appreciate the pipeline's value now that it has claimed the spotlight. It is even conceivable that the sum of CVR and the parent company would be greater than the pre-split value of the company. Spinning off the CVR would have many of the same benefits for shareholders and employees as the breeding platform model because it would allow the platform company to retain its independence from shareholders' laser focus on late-stage products.

Some readers may see a similarity here with the use of tracking stocks, which was practiced most notably by Genzyme from 1994 and then abandoned in 2003 due to complex accounting practices that investors found confusing. The difference between tracking stocks and CVRs is that the divisions represented by tracking stocks were not actually separate entities – they were still part of the same company under one management team and board and it wasn't clear which stock you should own to ensure that you would get a return on investment. In the case of a CVR or spin-out that has been distributed to shareholders, there is no connection between the CVR and the platform company. Unlike the confusion with tracking stocks, investors have no problem differentiating between Facet and PDL, between Codexis and Maxygen, or between what they are entitled to if they own SNY versus GCVRZ.

If a company were to consider spinning off the winnings of a partnership into a CVR, there would be some question as to what exactly to spin off into the CVR and what to keep in the parent company. For example, if a deal brings in \$100

million up front and the promise of future big milestones and royalties, then it might be tempting for the management team to put only the milestones and royalties into the CVR and keep the cash to fuel the pipeline. This would likely upset shareholders. However, if management were incentivized primarily with stock and therefore acted more like shareholders, they might appreciate that a substantial portion of the cash should be distributed to shareholders along with the CVR.

Theoretically, the company might distribute all the cash to shareholders and then try to win it back from them by showcasing the pipeline. This is impractical for two reasons: first, it disrupts the operations of the company because distributions and financings are not without their administrative complications and costs, and second, if the shareholders

But what if management just turned the partnership contract into a tradable CVR?

actually like a company's additional pipeline, this scenario forces them to pay taxes on the cash distribution before reinvesting the money back into the company. Management might therefore convene a shareholder meeting to present several options for retaining various amounts of cash to fund a part of or the entire pipeline to gauge investor sentiment. Alternatively, the CEO could spin out the CVR, keep the cash while suggesting that they might invest it in the pipeline or use it for acquisition, and then watch what happens with the company's stock price; if it trades below the cash in the bank, as happened with Cypress and Northstar Neuroscience Inc., that would be akin to shareholders' voting against management's pipeline development plans. In that case, as Maxygen concluded, the best way to increase the stock price would be to demonstrate a clear intention to distribute the excess cash to shareholders and then to follow through.

create significant value with funding from supportive investors by running the right kinds of clinical trials and then selling out to interested acquirers or packaging the contractual terms of a partnership into CVRs that trade independently, freeing the executives to devote their expertise to other projects.

Practically speaking, our industry already operates this way, with Big Pharma typically acquiring or licensing a platform's more advanced assets. But instead of acknowledging this fact, and addressing clearly the different incentives and personal goals of employees, investors and acquirers, the various parties waste time and money fighting over how value is allocated – with scientific innovation one prominent victim of the squabble.

The three concepts presented here would

align the incentives of all the participants and facilitate a smoother flow of products from breeding platforms to their biotech partners. It would also speed the distribution of cash to all the shareholders, including management and employees of both the platform- and product-focused entities. Along the way, investors and properly incentivized managers who enjoy shepherding drugs through development can continue to practice their craft, doing a better and more efficient job of it than could either the breeding platforms or larger independent pharmaceutical players.

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